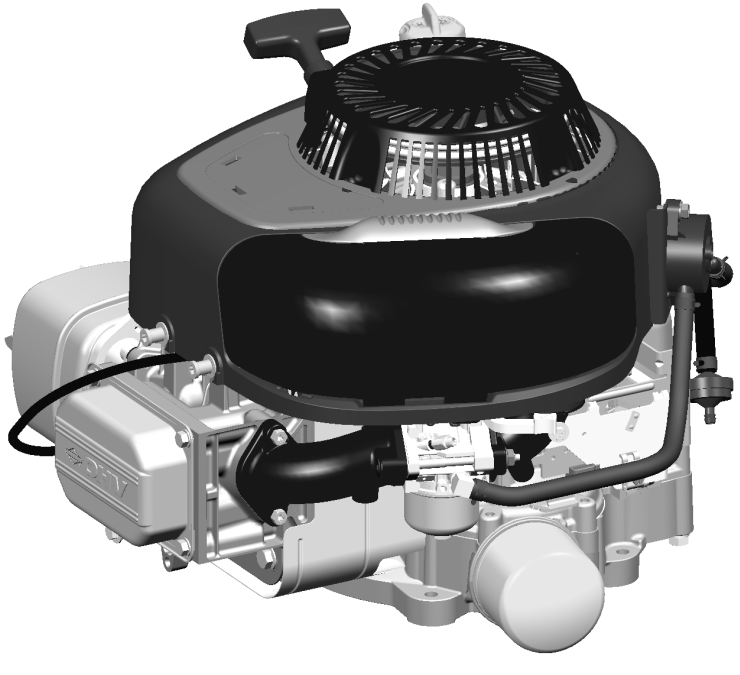
BRIGGS & STRATTON

(GB) ***Operating & Maintenance Instructions***
(BG) Инструкции за работа и техническо обслужване
(CR) ***Upute za korištenje i održavanje***
(CZ) ***Návod k obsluze a údržbě***
(EE) ***Kasutus- ja hooldusjuhend***
(H) ***Kezelési és karbantartási útmutató***
(LT) ***Naudojimo ir aptarnavimo instrukcija***
(LV) ***Lietošanas un apkopes instrukcija***
(PL) ***Instrukcja Obsługi i Konserwacji***
(RO) ***Instrucțiuni de utilizare şi de întreținere***
(RU) Инструкции по эксплуатации и техническому обслуживанию
(SL) ***Navodila za uporabo & vzdrževanje***

Model 210000
Power Built
Intek
I/C

Model 280000
Intek
I/C
Extended Life Series

Model 310000
Intek
I/C
Extended Life Series



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Milwaukee, Wisconsin 53201 U.S.A.

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Fig. 1

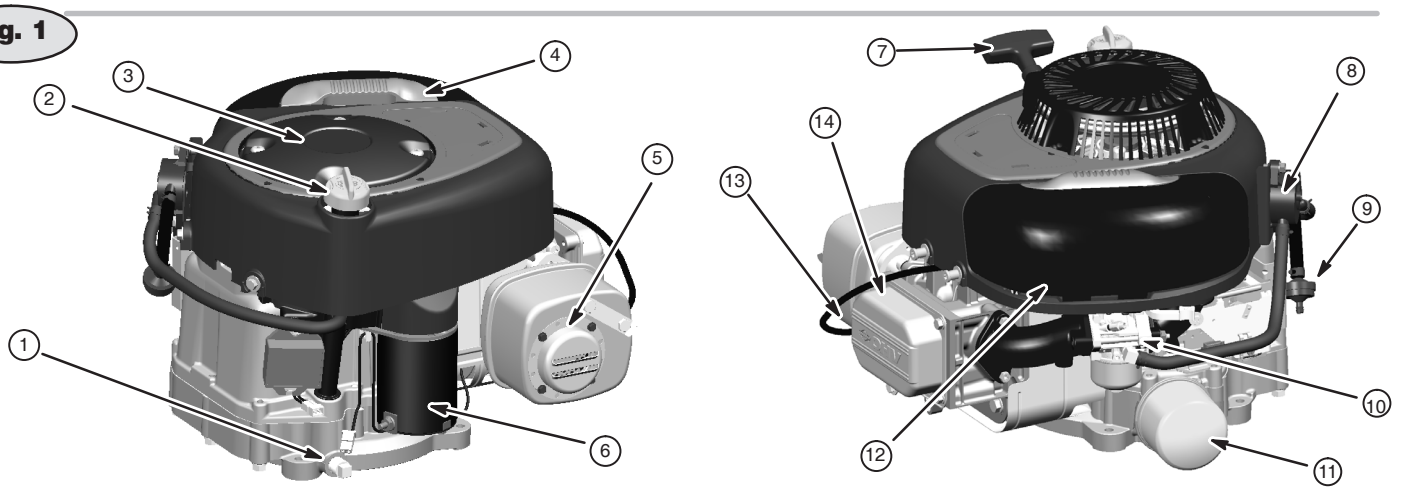


Fig. 2

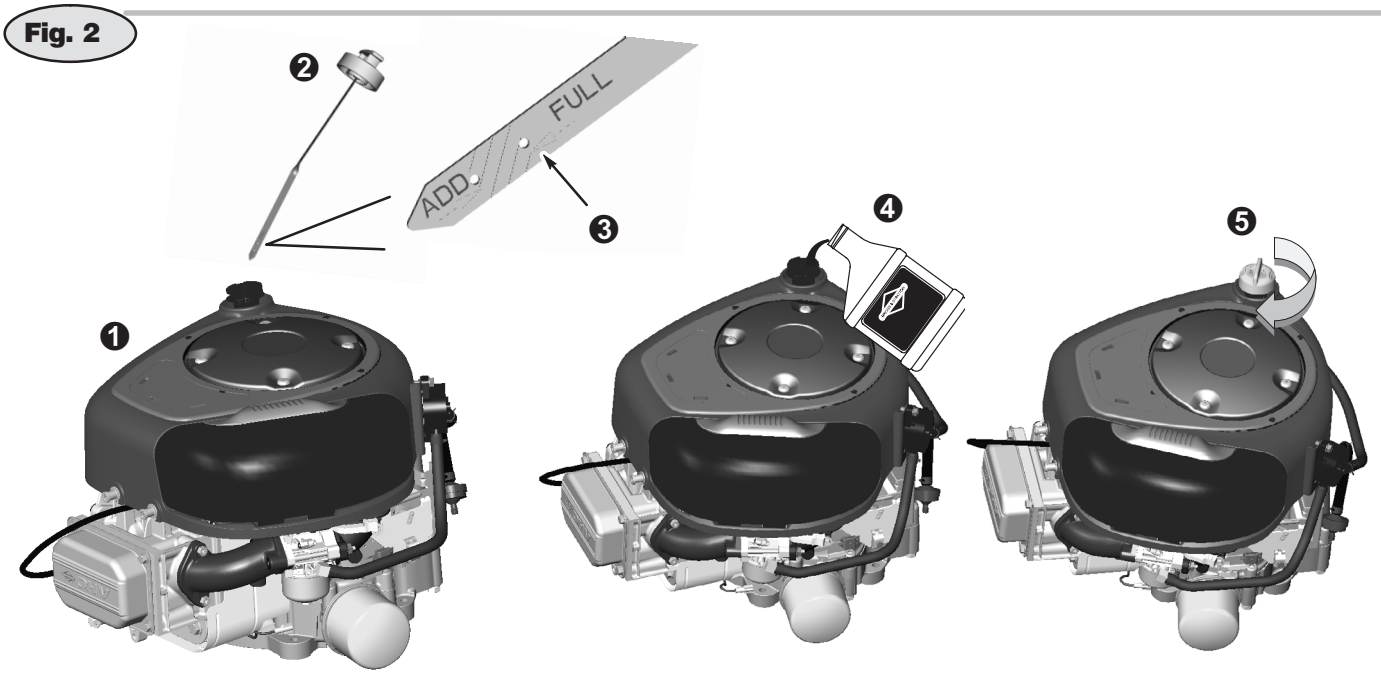


Fig. 3

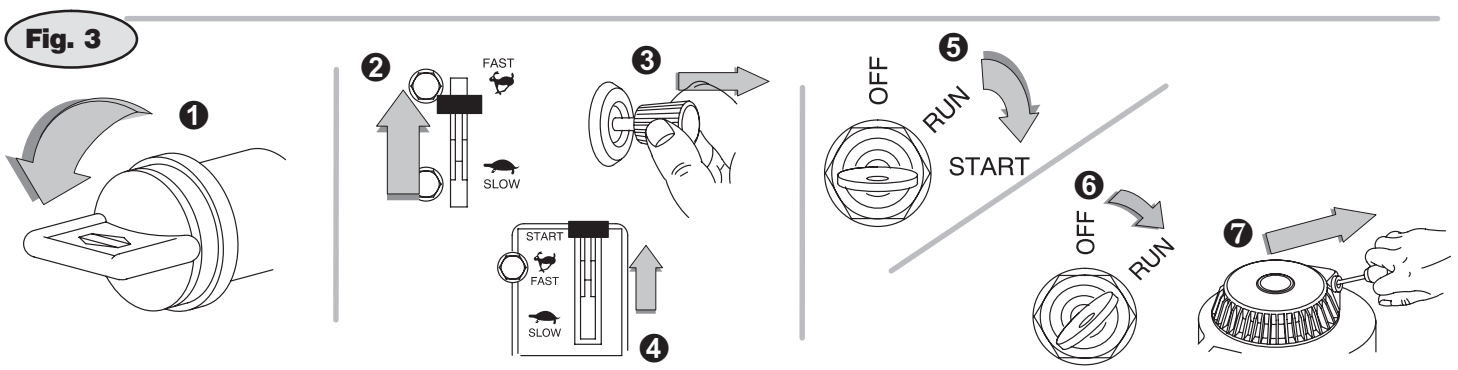
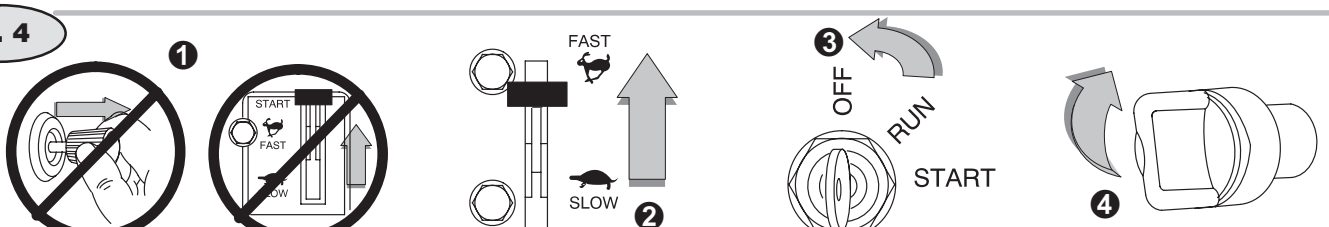


Fig. 4



Note: (This note applies only to engines used in the U.S.A.) Maintenance, replacement or repair of the emission control devices and systems may be performed by any nonroad engine repair establishment or individual. However, to obtain no charge repairs under the terms and provisions of the Briggs & Stratton warranty statement, any service or emission control part repair or replacement must be performed by a factory authorized dealer.

GB

ENGINE COMPONENTS

Fig. 1

1. Oil drain
2. Oil fill / Dipstick
3. Rotating screen
4. Air cleaner handle
5. Muffler / muffler guard, if equipped & Spark arrester, if equipped
6. 12 V electric starter
7. Rewind starter handle
8. Fuel pump (if equipped)
9. In-line fuel filter (if equipped)
10. Carburetor or LPG / NG Mixer
11. Oil filter (if equipped)
12. Air Cleaner cover
13. Spark plug wire
14. Engine Model Type Code
    xxxxxx xxxx xx xxxxxxxx

Record your engine Model, Type and Code numbers here for future use.

_____ _____ _____

Record your date of purchase here for future use.

_____

GENERAL INFORMATION

In the state of California, OHV Models 210000, 280000 and 310000 engines are certified by the California Air Resources Board to meet emissions standards for 250 hours. Such certification does not grant the purchaser, owner or operator of this engine any additional warranties with respect to the performance or operational life of this engine. This engine is warranted solely according to the product and emissions warranties stated elsewhere in this manual.

Model 210000

Bore . . . . . 87.31 mm (3.44 in.)
Stroke . . . . . 57.66 mm (2.27 in.)
Displacement . . . . . 344 cc (21.00 cu. in.)

Model 280000

Bore . . . . . 87.31 mm (3.44 in.)
Stroke . . . . . 77.78 mm (3.06 in.)
Displacement . . . . . 466 cc (28.42 cu. in.)

Model 310000

Bore . . . . . 90.60 mm (3.56 in.)
Stroke . . . . . 77.78 mm (3.06 in.)
Displacement . . . . . 501 cc (30.59 cu. in.)

TUNE-UP SPECIFICATIONS

Armature air gap . . . . . 0.25 – 0.36 mm
. . . . . (0.010 – 0.014 in.)
Spark plug gap . . . . . 0.76 mm (0.030 in.)
Valve clearance with valve springs installed and piston 6 mm past top dead center (check when engine is cold). See Repair Manual P/N 272147.
Intake valve clearance . . . . . 0.08 – 0.13 mm
. . . . . (0.003 – 0.005 in.)
Exhaust valve clearance . . . . . 0.13 – 0.18 mm
. . . . . (0.005 – 0.007 in.)

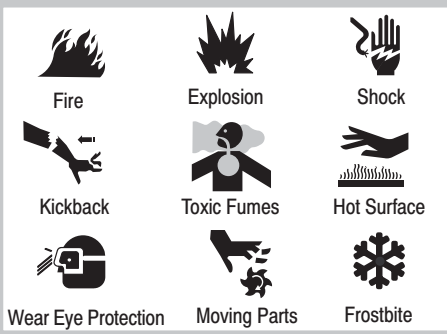
Note: Engine power will decrease 3-1/2% for each 1,000 feet (300 meters) above sea level and 1% for each 10° F (5.6° C) above 77° F (25° C). Engine will operate satisfactorily at an angle up to 15°.

TECHNICAL INFORMATION

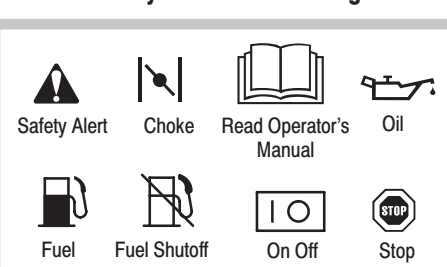
Engine Power Rating Information

The gross power rating for individual gas engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected in accordance with SAE J1995 (Revision 2002-05). Actual gross engine power will be lower and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given both the wide array of products on which engines are placed and the variety of environmental issues applicable to operating the equipment, the gas engine will not develop the rated gross power when used in a given piece of power equipment (actual "on-site" or net horsepower). This difference is due to a variety of factors including, but not limited to, accessories (air cleaner, exhaust, charging, cooling, carburetor, fuel pump, etc.), application limitations, ambient operating conditions (temperature, humidity, altitude), and engine-to-engine variability. Due to manufacturing and capacity limitations, Briggs & Stratton may substitute an engine of higher rated power for this Series engine.

Hazard Symbols and Meanings



International Symbols and Meanings



SAFETY SPECIFICATIONS

BEFORE OPERATING ENGINE

- Read entire Operating & Maintenance Instructions AND the instructions for the equipment this engine powers.*
- Failure to follow instructions could result in serious injury or death.

* Briggs & Stratton does not necessarily know what equipment this engine will power. For that reason, you should carefully read and understand the operating instructions for the equipment on which your engine is placed.

THE OPERATING & MAINTENANCE INSTRUCTIONS CONTAIN SAFETY INFORMATION TO:

- Make you aware of hazards associated with engines
- Inform you of the risk of injury associated with those hazards, and
- Tell you how to avoid or reduce the risk of injury.

A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of injury. In addition, a hazard symbol may be used to represent the type of hazard.

DANGER indicates a hazard which, if not avoided, **will result in death or serious injury.**

WARNING indicates a hazard which, if not avoided, **could result in death or serious injury.**

CAUTION indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION, when used **without** the alert symbol, indicates a situation that **could result in damage to the engine.**

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

WARNING

Engines give off carbon monoxide, an odorless, colorless, poison gas.

Breathing carbon monoxide can cause nausea, fainting or death.

- Start and run engine outdoors.
- Do not start or run engine in enclosed area, even if doors or windows are open.

WARNING

Starting engine creates sparking.

Sparking can ignite nearby flammable gases.

Explosion and fire could result.

- If there is natural or LP gas leakage in area, do not start engine.
- Do not use pressurized starting fluids because vapors are flammable.

WARNING

Fuel and its vapors are extremely flammable and explosive.

Fire or explosion can cause severe burns or death.

WHEN FUELING

- Turn engine OFF and let engine cool at least 2 minutes before removing cap or re-fueling engine.
- Fill fuel tank outdoors or in well-ventilated area.
- On **GASOLINE** operated engines, do not overfill fuel tank. Fill tank to approximately 1-1/2 inch below lowest portion of fill opening to allow for fuel expansion.
- Keep gasoline away from sparks, open flames, pilot lights, heat, and other ignition sources.
- Check fuel lines, tank, cap, and fittings frequently for cracks or leaks. Replace if necessary.

WHEN STARTING ENGINE

- Make sure spark plug, muffler, fuel cap and air cleaner are in place, and firmly secured by equipped fasteners.
- Do not crank engine with spark plug, air cleaner cartridge, or air cleaner cover removed.
- If fuel spills, wait until it evaporates before starting engine.
- If **GASOLINE** engine floods, set choke to OPEN/RUN position, place throttle in FAST and crank until engine starts.

WHEN OPERATING EQUIPMENT

- Do not tip engine or equipment at angle which causes gasoline to spill.
- Do not choke carburetor to stop engine.

WHEN TRANSPORTING EQUIPMENT

- Transport with fuel tank EMPTY or with fuel shut-off valve OFF.

WHEN STORING GASOLINE OR EQUIPMENT WITH FUEL IN TANK

- Store away from furnaces, stoves, water heaters or other appliances that have pilot light or other ignition source because they can ignite gasoline vapors.

WARNING

Wear eye protection when doing repair work.

Frostbite can result from skin/eye contact with leaking LP liquid.

- Installation, adjustment and repair work should be done by a qualified technician.
- Flexible supply lines should be checked regularly to make sure they are in good condition. Replace damaged or leaking components.

WARNING

Rotating parts can contact or entangle hands, feet, hair, clothing, or accessories.

Traumatic amputation or severe laceration can result.

- Operate equipment with guards in place.
- Keep hands and feet away from rotating parts.
- Tie up long hair and remove jewelry.
- Do not wear loose-fitting clothing, dangling drawstrings or items that could become caught.

WARNING

Gaseous fuels are extremely flammable and readily form explosive air-vapor mixtures at ambient temperatures.

IF YOU SMELL GAS:

- DO NOT start the engine.
- DO NOT actuate any electrical switches.
- DO NOT use the phone in the vicinity.
- Evacuate the area.
- Contact the gas supplier or fire department.

REMEMBER:

- LPG vapor is heavier than air and trends to collect in low areas. NG vapor is lighter than air and tends to collect in high areas. Both may travel to remote locations.
- Keep all flames, sparks, pilot lights, and other ignition sources away from the area where the engine is operated or repaired.
- DO NOT smoke when operating or repairing the engine.
- DO NOT store gasoline or other flammable vapors or liquids in the vicinity of the engine.
- BEFORE doing any service work to the engine, shut off the gas supply.
- After initial installation or servicing, check for gas leaks. DO NOT use an open flame. Apply very soapy water or leak test solution with a brush and look for bubbles.
- Keep the equipment and the area surrounding the engine free of debris.
- Install the fuel system according to applicable fuel/gas codes.

WARNING

Rapid retraction of starter cord (kickback) will pull hand and arm toward engine faster than you can let go.

Broken bones, fractures, bruises or sprains could result.

- When starting engine, pull cord slowly until resistance is felt, then pull rapidly.
- Remove all external equipment/engine loads before starting engine.
- Direct coupled equipment components such as, but not limited to, blades, impellors, pulleys, sprockets, etc., must be securely attached.

WARNING

Running engines produce heat. Engine parts, especially muffler, become extremely hot.

Severe thermal burns can occur on contact.

Combustible debris, such as leaves, grass, brush, etc. can catch fire.

- Allow muffler, engine cylinder and fins to cool before touching.
- Remove accumulated combustibles from muffler area and cylinder area.
- Install and maintain in working order a spark arrester before using equipment on forest-covered, grass-covered, brush-covered unimproved land. The state of California requires this (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal land.

WARNING

Unintentional sparking can result in fire or electric shock.

Unintentional start-up can result in entanglement, traumatic amputation, or laceration.

BEFORE PERFORMING ADJUSTMENTS OR REPAIRS

- Disconnect spark plug wire and keep it away from spark plug.
- Disconnect battery at negative terminal (only engines with electric start).

WHEN TESTING FOR SPARK

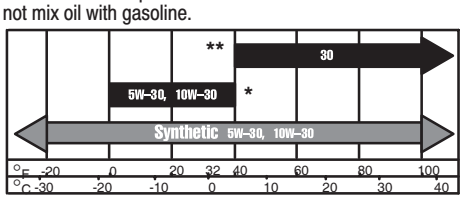
- Use approved spark plug tester.
- Do not check for spark with spark plug removed.

OIL RECOMMENDATIONS

CAUTION:

Engine shipped from Briggs & Stratton without oil. Before starting engine, fill with oil. Do not over-fill.

Use a high quality detergent oil classified "For Service SG, SH, SJ, SL" or higher such as Briggs & Stratton 30, Part Number 100005. Use no special additives with recommended oils. Do not mix oil with gasoline.



Choose the SAE viscosity grade of oil from this chart that matches the starting temperature anticipated before the next oil change.

* Air cooled engines run hotter than automotive engines. The use of non-synthetic multi-viscosity oils (5W-30, 10W-30, etc.) in temperatures above 40° F (4° C) will result in higher than normal oil consumption. When using a multi-viscosity oil, check oil level more frequently.

** Use of SAE 30 oil below 40° F (4° C) will result in hard starting and possible engine damage due to inadequate lubrication.

Note: Synthetic oil meeting ILSAC GF-2, API certification mark and API service symbol (shown at left) with "SJ/CF ENERGY CONSERVING" or higher, is an acceptable oil at all temperatures. **Use of synthetic oil does not alter required oil change intervals**.

CHECKING & ADDING OIL Fig. 2

Engine without oil filter:
Approximately 1.30 liter (44 ounces)

Engine with oil filter:
Approximately 1.42 liter (48 ounces)

- Check oil level ***before*** starting engine.
- DO NOT overfill. Keep level at FULL.
- Check level daily, or after every eight (8) hours of use.

1. Place engine level and keep oil fill area clean. ❶
2. Remove dipstick ❷, wipe with clean cloth,
3. Replace and tighten down again. Remove dipstick and check oil level. Oil should be at FULL line on dipstick. ❸
4. If oil is required, add slowly. ❹
5. Tighten dipstick firmly before starting engine. ❺

FUEL RECOMMENDATIONS

Gasoline Powered Engines

Use clean, fresh, lead-free, regular gasoline with a minimum of 85 octane. Leaded gasoline may be used if it is commercially available and if unleaded is unavailable. Purchase fuel in quantity that can be used within 30 days. See **Storage** instructions.

In U.S.A. leaded gasoline may not be used. Some fuels, called oxygenated or reformulated gasolines, are gasolines blended with alcohols or ethers. Excessive amounts of these blends can damage the fuel system or cause performance problems. If any undesirable operating symptoms occur, use gasoline with a lower percentage of alcohol or ether.

This engine is certified to operate on gasoline. Exhaust Emission Control System: EM (Engine Modifications).

Do not use gasoline which contains Methanol. Do not mix oil with gasoline.

For engine protection, we recommend using Briggs & Stratton Fuel Stabilizer available from an Authorized Briggs & Stratton Service Dealer.

Check fuel level

WARNING

Before refueling, allow engine to cool 2 minutes.

Clean around fuel fill before removing cap to refuel. Fill tank to approximately 1/2 inch below lowest portion of fill opening to allow for fuel expansion. Be careful not to overfill.

Natural / Liquid Propane Gas Powered Engines

- Use clean, dry fuel, free of moisture or any particulate material. Using fuels outside the following recommended values may cause performance problems.
- In engines set up to run on LPG, commercial grade HD5 LPG is recommended. Recommended fuel composition is fuel with a minimum fuel energy of 2500 BTU's/ft^3 with maximum propylene content of 5% and butane and heavier gas content of 2.5% and minimum propane content of 90%.
- NG or LPG engines are certified to operate on natural or liquid propane gas.

WARNING

The equipment on which this engine is mounted is equipped with an automatic safety gas "fuel lock-off" valve. DO NOT operate the equipment if the "fuel lock-off" valve is missing or inoperative.

Re-fueling

- Read the operating instructions supplied by the equipment manufacturer for information on refueling natural or LP gas engine.

STARTING / STOPPING

WARNING

Oil Pressure Switch

If engine is equipped with an oil pressure switch, the switch will either activate a warning light or stop the engine when the engine runs low on oil. (Read the operating instructions supplied by the equipment manufacturer to determine which way your engine is equipped because the equipment manufacturer supplies the oil pressure gauge.)

BEFORE STARTING

Start, store, and fuel engine in a level position. Remove external equipment / engine loads. Check oil level, and use correct type of oil for starting temperature.

STARTING ENGINE Fig. 3

Gasoline Powered Engines

1. Open fuel shut-off valve (if equipped). ❶
2. Move throttle ❷ to FAST. Operate engine with throttle in FAST.
3. Move choke ❸ control lever to CHOKE.
4. If choke and throttle are are on the same control, move to START or CHOKE position. ❹
5. **ELECTRIC START:** Insert key and turn to START. ❺

   CAUTION: To prolong starter life, use short starting cycles (5 seconds maximum, then wait one minute.) Follow manufacturer's recommendations for charging battery.
6. **REWIND START:** Insert key and turn to START. ❻ When starting engine, pull cord slowly until resistance is felt, then pull rapidly. ❼
7. Allow engine to warm up.
   IF CHOKE EQUIPPED: Slowly adjust toward RUN position. Wait until engine runs smoothly before each choke adjustment.

Natural / Liquid Propane Gas Powered Engines

1. **ELECTRIC START:** Insert key and turn to START. ❺

   CAUTION: To prolong starter life, use short starting cycles (5 seconds maximum, then wait one minute.) Follow manufacturer's recommendations for charging battery.
2. **REWIND START:** Insert key and turn to START.❻ When starting engine, pull cord slowly until resistance is felt, then pull rapidly. ❼
3. Allow engine to warm up.

STOPPING Fig. 4

WARNING

Do not stop engine by moving choke control to CHOKE.❶ Backfire, fire or engine damage could occur.

- With throttle (if equipped) in FAST ❷ position, turn key to OFF. ❸
- Remove key and store out of reach of children.
- Close fuel valve. ❹

MAINTENANCE

WARNING

To prevent accidental starting, remove spark plug wire and ground it before servicing.

We recommend that you see an authorized Briggs & Stratton Dealer for all maintenance and service. Use only Briggs & Stratton parts.

WARNING

Do not strike the flywheel with hammer or hard object. If done, the flywheel may shatter during operation.

Do not tamper with governor spring, links or other parts to increase engine speed.

First 5 hours

- Change oil

Every 8 hours or daily

- Check oil level
- Clean finger guard and around muffler

Every 25 hours or every season

- Change oil if operating under heavy load or high ambient temperature
- Service air cleaner pre-cleaner, if equipped*
- Replace air cleaner cartridge if no pre-cleaner*

Every 50 hours or every season

- Change oil
- Clean and inspect spark arrester, if equipped
- Clean ***Extended Life Series***™ air cleaner cartridge*

Every 100 hours or every season

- Replace air cleaner cartridge, if equipped with pre-cleaner*
- Replace oil filter, if equipped
- Replace in-line fuel filter, if equipped
- Clean cooling system*
- Clean or replace spark plug**

Every 200 hours or every season

- Replace ***Extended Life Series***™ air cleaner cartridge*

Every season

- Check valve clearance

* *Clean more often under dusty conditions, or when airborne debris is present or after prolonged operation cutting tall, dry grass.*

** *In some areas, local law requires using a resistor spark plug to suppress ignition signals. If this engine was originally equipped with resistor spark plug, use same type of spark plug for replacement.*

CHANGING ENGINE OIL Fig. 5

WARNING

Change oil after first 5 hours of operation. Change oil while engine is warm. Refill with new oil of recommended SAE viscosity grade.

1. Place engine level.
2. Disconnect spark plug wire and keep it away from spark plug.
3. With engine OFF but still warm, remove drain plug ❶ and drain oil into appropriate receptacle.
4. Reinstall oil drain plug. remove dipstick. ❷
5. Fill to FULL mark on dipstick with new oil.
   DO NOT OVERFILL ❸
6. Replace dipstick. Check oil level.

OIL FILTER (if equipped)

1. Drain engine oil and remove oil filter.
2. Before installing new filter, lightly oil filter gasket with fresh, clean engine oil.
3. Screw filter on by hand until gasket contacts oil filter adapter. Tighten 1/2 to 3/4 turn more.
4. Add fresh oil. Fill to FULL line on dipstick.
5. Start and run engine at idle to check for leaks.
6. Stop engine. Recheck oil level and add oil if required.

OIL PRESSURE

If oil pressure drops too low, an oil pressure switch (if engine is equipped) will either activate a warning light or stop the engine. Check oil level with dipstick. If oil level is between **ADD** and **FULL** mark on dipstick, Do not try to restart engine. Contact an Authorized Briggs & Stratton Service Dealer. Do not operate engine until oil pressure is corrected.

If oil level is below **ADD** mark on dipstick, add oil to bring level to **FULL** mark. Restart engine and check oil pressure. If pressure is normal, continue to operate engine.

Note: Oil pressure gauge, if engine is equipped, is supplied by manufacturer of equipment.

AIR CLEANER Fig. 6

CAUTION: Do not use pressurized air or solvents to clean cartridge. Pressurized air can damage cartridge; solvents will dissolve cartridge.

Extended Life Series™
Air Filter Cartridge ❾

This filter, IF STAMPED 'WASHABLE', can be washed with warm water and mild soap.
IMPORTANT: Rinse in tap water with **SCREEN** side up allowing dirt and debris to filter out.
Leave filter to dry overnight before reinstalling.

Cartridge removal / installation

1. Pull up on air cleaner cover ❶ handle, and rotate towards ❷ engine.
2. Remove cover ❸❻.
3. Carefully lift air cleaner cartridge ❹, and pre-cleaner ❺, if equipped, from blower housing.
4. Clean air cleaner base carefully to prevent debris from falling into carburetor.
5. Place new pre-cleaner, if equipped, and cartridge firmly in base.
6. Align tabs ❼ on cover with slots ❽ of blower housing and replace cover.
7. Hook handle and close cover.

HIGH FLOW AIR CLEANER – CYLINDER FILTER Fig. 7

This filter ❶ is made of cotton, which is different from a standard paper filter, it MUST be oiled.

1. Spray the filter with air filter cleaning solution. Allow filter to soak in solution for 15 minutes.

   CAUTION: Never use detergents, high pressure water, or gasoline to clean this filter.

2. Rinse the filter with warm water. Let the water run from clean side to the dirty side.
3. Allow filter to dry completely. It is best to allow the filter to dry naturally. Do not use heat, this may shrink the cotton.
4. USE ONLY AIR FILTER OIL, such as the oil included in the cleaning kit (P/N 5089D), to re-oil the filter.

   WARNING

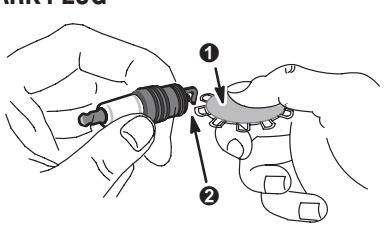
   Never use motor oil, transmission fluid, WD40, or other oils. Failure to follow instructions can cause fires resulting in death or serious injury. Use only air filter oil designed specifically for air filters.

5. Pour or spray a small amount on each pleat. Allow the oil to soak into the filter for 20 minutes. The filter is correctly oiled when the cotton changes to the color of the oil.

   CAUTION: DO NOT over-oil air filter, it will interfere with engine performance and may cause engine damage. If the filter is placed on cardboard for 10 minutes and leaves a stain, it is over oiled. Wash/clean and re-oil per above instructions.

6. Re-install air filter.

SPARK PLUG



Check the spark plug every season. Replace the spark plug if upon inspection the electrodes are burned or worn. Ensure the spark plug is clean. Check the gap with a feeler gage ❶ and reset to .76 mm or 0.030 in. ❷ if necessary.

CLEANING DEBRIS Fig. 8

Daily or before every use, clean accumulated debris from engine.❶ Keep linkage, springs and controls clean.❷ Keep area around and behind the muffler free of any combustible debris.❸

CAUTION: Do not use water to clean engine parts. Water could contaminate fuel system. Use a brush or dry cloth.

WARNING

Engine parts should be kept clean to reduce the risk of overheating and ignition of accumulated debris.

MUFFLER

WARNING

Replacement parts for the muffler must be the same and installed in the same position as the original parts, otherwise fire can occur.

If muffler is equipped with spark arrester screen, remove screen for inspection. Replace screen if damaged or plugged with debris.

FUEL SYSTEM / IN-LINE FUEL FILTER

WARNING

Replacement parts for fuel system (caps, hoses, tanks, filters, etc.) must be the same as the original parts otherwise fire can occur.

Fuel Filter – Drain fuel tank or close fuel shut-off valve before replacing fuel filter, otherwise fuel can leak out, creating a potential hazard.

AIR COOLING SYSTEM Fig. 9

It is recommended to clean the air cooling system with blower housing removed every 100 hours. Clean areas shown.❶

STORAGE

Engines stored over 30 days need to be protected or drained of fuel to prevent gum from forming in fuel system or on essential carburetor parts.

For engine protection, we recommend use of Briggs & Stratton Fuel Stabilizer available from an Authorized Briggs & Stratton Service Dealer. Mix stabilizer with fuel in fuel tank or storage container. Run engine for a short time to circulate stabilizer through carburetor. Engine and fuel can be stored up to 24 months.

Note: If stabilizer is not used or if engine is operating on gasoline containing alcohol, e.g. gasohol, remove all fuel from tank and run engine until it stops from lack of fuel.

1. Change oil.
2. Remove spark plug and pour about 30 ml (1 oz) of engine oil into cylinder. Replace spark plug and crank slowly to distribute oil.
3. Clean grass and chaff from cylinder and cylinder head fins, under finger guard and behind muffler.
4. Store in a clean and dry area, but NOT near a stove, furnace or water heater which uses a pilot light or any device that can create a spark.

SERVICE

See an Authorized Briggs & Stratton Service Dealer. Each one carries a stock of Genuine Briggs & Stratton Parts and is equipped with special service tools. Trained mechanics assure expert repair service on all Briggs & Stratton engines.

Only dealers advertising as "Authorized Briggs & Stratton" are required to meet Briggs & Stratton standards.

When you purchase equipment powered by a Briggs & Stratton engine, you are assured of highly skilled, reliable service at more than 30,000 Authorized Service Dealers worldwide, including more than 6,000 Master Service Technicians. Look for these signs wherever Briggs & Stratton service is offered.

You may locate your nearest Authorized Briggs & Stratton Service Dealer in our dealer locator map on our web site **www.briggsandstratton.com** or in the "Yellow Pages™" directory under "Engines, Gasoline" or "Gasoline Engines," or "Lawn Mowers" or similar category.

Note: Walking fingers logo and "Yellow Pages" are registered trademarks in various jurisdictions.

An illustrated shop manual includes "Theories of Operation," common specifications and detailed information covering adjustment, tune-up and repair of Briggs & Stratton single cylinder, OHV, 4 cycle engines. Order the shop manual from an Authorized Briggs & Stratton Service Dealer. Order P/N 272147 for all models.

Insist on Genuine Briggs & Stratton replacement parts with our logo on the box and/or part. Non-original parts may not perform as well and may void your warranty.

PARTIAL LIST OF GENUINE BRIGGS & STRATTON PARTS

Models 280000, 310000 AVS™ Series

Extended Life Series ™ flat air cleaner cartridge (washable, no pre-cleaner required) 697153
Extended Life Series ™ Maintenance Kit 5128
(Includes oil, A/C filter, spark plug, gas additive)
Flat air cleaner cartridge and pre-cleaner kit 5077
Flat air cleaner cartridge 698083
Flat air cleaner pre-cleaner 697015
Maintenance Kit 5127
(Includes oil, A/C filter, spark plug, gas additive)
UL approved Flat air cleaner cartridge 790263
(For NG/LPG Gaseous Fuel engines only.)

Model 210000 AVS™ Series

Flat air cleaner cartridge and pre-cleaner kit 5079
Flat air cleaner cartridge 698413
Flat air cleaner pre-cleaner 697292
Maintenance Kit 5126
(Includes oil, A/C filter, spark plug, gas additive)

Oval air cleaner cartridge and pre-cleaner kit 5053
Oval air cleaner cartridge 496894
Oval air cleaner pre-cleaner 272403
High Flow Air Filter (cylinder) 698973
High Flow Air Filter Cleaning Kit 5089D
Synthetic Oil (32 oz.) 100074
Oil (20 oz.) 100005
Oil (48 oz.) 100028
Oil filter (6 cm long) . . . . . 492932 -or- 5049
Oil filter (8.5 cm long) 491056
Fuel stabilizer (30 ml, single use pouch) 992030
Fuel stabilizer (125 ml) . . . . . 999005E -or- 5041
Fuel filter (without fuel pump) . . . . . 298090 -or- 5018
Extended Life Series Fuel filter
(for engines with fuel pump) . . . . . 695666 -or- 5070
Fuel filter (for engines with fuel pump) 394358
Resistor spark plug 491055
Long life platinum spark plug
(used on most OHV engines) 5066
Spark tester 19368
Spark plug wrench . . . . . 89838 -or- 5023
Oil pump kit (uses standard electric drill to
remove oil from engine quickly) 5056

Briggs & Stratton Corporation (B&S), the California Air Resources Board (CARB) and the United States Environmental Protection Agency (U.S. EPA) Emissions Control System Warranty Statement (Owner's Defect Warranty Rights and Obligations)

California, United States and Canada Emissions Control Defects Warranty Statement
The California Air Resources Board (CARB), U.S. EPA and B&S are pleased to explain the Emissions Control System Warranty on your small off-road engine (SORE). In California, new small off-road engines model year 2006 and later must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere in the United States, new non-road, spark-ignition engines certified for model year 1997 and later must meet similar standards set forth by the U.S. EPA. B&S must warrant the emissions control system on your engine for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your small off-road engine.
Your emissions control system includes parts such as the carburetor, air cleaner, ignition system, fuel line, muffler and catalytic converter. Also included may be connectors and other emissions related assemblies.
Where a warrantable condition exists, B&S will repair your small off-road engine at no cost to you including diagnosis, parts and labor.

Briggs & Stratton Emissions Control Defects Warranty Coverage
Small off-road engines are warranted relative to emissions control parts defects for a period of two years, subject to provisions set forth below. If any covered part on your engine is defective, the part will be repaired or replaced by B&S.

Owner's Warranty Responsibilities
As the small off-road engine owner, you are responsible for the performance of the required maintenance listed in your Operating and Maintenance Instructions. B&S recommends that you retain all your receipts covering maintenance on your small off-road engine, but B&S cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
As the small off-road engine owner, you should however be aware that B&S may deny your warranty coverage if your small off-road engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
You are responsible for presenting your small off-road engine to an Authorized B&S Service Dealer as soon as a problem exists. The undisputed warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.
If you have any questions regarding your warranty rights and responsibilities, you should contact a B&S Service Representative at 1-414-259-5262.
The emissions warranty is a defects warranty. Defects are judged on normal engine performance. The warranty is not related to an in-use emissions test.

Briggs & Stratton Emissions Control Defects Warranty Provisions

The following are specific provisions relative to your Emissions Control Defects Warranty Coverage. It is in addition to the B&S engine warranty for non-regulated engines found in the Operating and Maintenance Instructions.

1. Warranted Parts
   Coverage under this warranty extends only to the parts listed below (the emissions control systems parts) to the extent these parts were present on the engine purchased.
   a. Fuel Metering System
      - Cold start enrichment system (soft choke)
      - Carburetor and internal parts
      - Fuel pump
      - Fuel line, fuel line fittings, clamps
      - Fuel tank, cap and tether
      - Carbon canister

   b. Air Induction System
      - Air cleaner
      - Intake manifold
      - Purge and vent line

   c. Ignition System
      - Spark plug(s)
      - Magneto ignition system

   d. Catalyst System
      - Catalytic converter
      - Exhaust manifold
      - Air injection system or pulse valve

   e. Miscellaneous Items Used in Above Systems
      - Vacuum, temperature, position, time sensitive valves and switches
      - Connectors and assemblies

2. Length of Coverage
   B&S warrants to the initial owner and each subsequent purchaser that the Warranted Parts shall be free from defects in materials and workmanship which caused the failure of the Warranted Parts for a period of two years from the date the engine is delivered to a retail purchaser.
3. No Charge
   Repair or replacement of any Warranted Part will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a Warranted Part is defective, if the diagnostic work is performed at an Authorized B&S Service Dealer. For emissions warranty service contact your nearest Authorized B&S Service Dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers," or similar category.
4. Claims and Coverage Exclusions
   Warranty claims shall be filed in accordance with the provisions of the B&S Engine Warranty Policy. Warranty coverage shall be excluded for failures of Warranted Parts which are not original B&S parts or because of abuse, neglect or improper maintenance as set forth in the B&S Engine Warranty Policy. B&S is not liable to cover failures of Warranted Parts caused by the use of add-on, non-original, or modified parts.
5. Maintenance
   Any Warranted Part which is not scheduled for replacement as required maintenance or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any Warranted Part which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs. The owner is responsible for the performance of all required maintenance, as defined in the B&S Operating and Maintenance Instructions.
6. Consequential Coverage
   Coverage hereunder shall extend to the failure of any engine components caused by the failure of any Warranted Part still under warranty.

Look For Relevant Emissions Durability Period and Air Index Information On Your Engine Emissions Label

Engines that are certified to meet the California Air Resources Board (CARB) Tier 2 Emission Standards must display information regarding the Emissions Durability Period and the Air Index. Briggs & Stratton makes this information available to the consumer on our emission labels. The engine emission label will indicate certification information.

The **Emissions Durability Period** describes the number of hours of actual running time for which the engine is certified to be emissions compliant, assuming proper maintenance in accordance with the Operating & Maintenance Instructions. The following categories are used:

Moderate:
Engine is certified to be emission compliant for 125 hours of actual engine running time.

Intermediate:
Engine is certified to be emission compliant for 250 hours of actual engine running time.

Extended:
Engine is certified to be emission compliant for 500 hours of actual engine running time. For example, a typical walk-behind lawn mower is used 20 to 25 hours per year. Therefore, the **Emissions Durability Period** of an engine with an **intermediate** rating would equate to 10 to 12 years.
Certain Briggs & Stratton engines will be certified to meet the United States Environmental Protection Agency (USEPA) Phase 2 emission standards. For Phase 2 certified engines, the Emissions Compliance Period referred to on the Emissions Compliance label indicates the number of operating hours for which the engine has been shown to meet Federal emission requirements.
For engines less than 225 cc displacement.
Category C = 125 hours
Category B = 250 hours
Category A = 500 hours
For engines of 225 cc or more displacement.
Category C = 250 hours
Category B = 500 hours
Category A = 1000 hours.

BRIGGS & STRATTON ENGINE OWNER WARRANTY POLICY

Effective September 1, 2006

LIMITED WARRANTY

Briggs & Stratton Corporation will repair or replace, free of charge, any part(s) of the engine that is defective in material or workmanship or both. Transportation charges on parts submitted for repair or replacement under this warranty must be borne by purchaser. This warranty is effective for and is subject to the time periods and conditions stated below. For warranty service, find the nearest Authorized Service Dealer in our dealer locator map at www.briggsandstratton.com, or by calling 1-800-233-3723, or as listed in the 'Yellow Pages™'.

THERE IS NO OTHER EXPRESS WARRANTY. IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE YEAR FROM PURCHASE, OR TO THE EXTENT PERMITTED BY LAW ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES ARE EXCLUDED TO THE EXTENT EXCLUSION IS PERMITTED BY LAW. Some states or countries do not allow limitations on how long an implied warranty lasts, and some states or countries do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state and country to country.

WARRANTY TERMS **

Brand / Product Type	Consumer Use	Commercial Use
Vanguard™	2 years	2 years
Extended Life Series™	2 years	1 year
I/C®, Intek I/C®, Intek Pro™	2 years	180 days
Kerosene Fuel Operated Engines	1 year	90 days
All Other Briggs & Stratton Engines	2 years	90 days

** Engines used on Home Standby Generator applications are warranted under consumer use only.
This warranty does not apply to engines on equipment used for prime power in place of a utility.
Engines used in competitive racing or on commercial or rental tracks are not warranted.

The warranty period begins on the date of purchase by the first retail consumer or commercial end user, and continues for the period of time stated in the table above. "Consumer use" means personal residential household use by a retail consumer. "Commercial use" means all other uses, including use for commercial, income producing or rental purposes. Once an engine has experienced commercial use, it shall thereafter be considered as a commercial use engine for purposes of this warranty.

NO WARRANTY REGISTRATION IS NECESSARY TO OBTAIN WARRANTY ON BRIGGS & STRATTON PRODUCTS. SAVE YOUR PROOF OF PURCHASE RECEIPT. IF YOU DO NOT PROVIDE PROOF OF THE INITIAL PURCHASE DATE AT THE TIME WARRANTY SERVICE IS REQUESTED, THE MANUFACTURING DATE OF THE PRODUCT WILL BE USED TO DETERMINE THE WARRANTY PERIOD.

ABOUT YOUR ENGINE WARRANTY

Briggs & Stratton welcomes warranty repair and apologizes to you for being inconvenienced. Any Authorized Service Dealer may perform warranty repairs. Most warranty repairs are handled routinely, but sometimes requests for warranty service may not be appropriate. For example, warranty would not apply if engine damage occurred because of misuse, lack of routine maintenance, shipping, handling, warehousing or improper installation. Similarly, warranty is void if the serial number of the engine has been removed or the engine has been altered or modified.

If a customer differs with the decision of the Service Dealer, an investigation will be made to determine whether the warranty applies. Ask the Service Dealer to submit all supporting facts to his Distributor or the Factory for review. If the Distributor or the Factory decides that the claim is justified, the customer will be fully reimbursed for those items that are defective. To avoid misunderstanding which might occur between the customer and the Dealer, listed below are some of the causes of engine failure that the warranty does not cover.

Normal wear:
Engines, like all mechanical devices, need periodic parts service and replacement to perform well. Warranty will not cover repair when normal use has exhausted the life of a part or an engine.

Improper maintenance:
The life of an engine depends upon the conditions under which it operates, and the care it receives. Some applications, such as tillers, pumps and rotary mowers, are very often used in dusty or dirty conditions, which can cause what appears to be premature wear. Such wear, when caused by dirt, dust, spark plug cleaning grit, or other abrasive material that has entered the engine because of improper maintenance, is not covered by warranty.

This warranty covers engine related defective material and/or workmanship only, and not replacement or refund of the equipment to which the engine may be mounted. Nor does the warranty extend to repairs required because of:

1. PROBLEMS CAUSED BY PARTS THAT ARE NOT ORIGINAL BRIGGS & STRATTON PARTS.
2. Equipment controls or installations that prevent starting, cause unsatisfactory engine performance, or shorten engine life. (Contact equipment manufacturer.)
3. Leaking carburetors, clogged fuel pipes, sticking valves, or other damage, caused by using contaminated or stale fuel. (Use clean, fresh, lead-free gasoline and Briggs & Stratton Fuel Stabilizer, Part No. 5041.)
4. Parts which are scored or broken because an engine was operated with insufficient or contaminated lubricating oil, or an incorrect grade of lubricating oil. OIL GARD may not shut down running engine. Engine damage may occur if oil level is not properly maintained.
5. Repair or adjustment of associated parts or assemblies such as clutches, transmissions, remote controls, etc., which are not manufactured by Briggs & Stratton.
6. Damage or wear to parts caused by dirt, which entered the engine because of improper air cleaner maintenance, re-assembly, or use of a non-original air cleaner element or cartridge.
7. Parts damaged by over-speeding, or overheating caused by grass, debris, or dirt, which plugs or clogs the cooling fins, or flywheel area, or damage caused by operating the engine in a confined area without sufficient ventilation.
8. Engine or equipment parts broken by excessive vibration caused by a loose engine mounting, loose cutter blades, unbalanced blades or loose or unbalanced impellers, improper attachment of equipment to engine crankshaft, over-speeding or other abuse in operation.
9. A bent or broken crankshaft, caused by striking a solid object with the cutter blade of a rotary lawn mower, or excessive v-belt tightness.
10. Routine tune-up or adjustment of the engine.
11. Engine or engine component failure, i.e., combustion chamber, valves, valve seats, valve guides, or burned starter motor windings, caused by the use of alternate fuels such as, liquified petroleum, natural gas, altered gasolines, etc.

Warranty is available only through service dealers which have been authorized by Briggs & Stratton Corporation. your nearest Authorized Service Dealer is listed in the "Yellow Pages™" of your telephone directory under "Engines, Gasoline" or "Gasoline Engines," "Lawn Mowers," or similar category.

Briggs & Stratton Engines Are Made Under One Or More Of The Following Patents: Design D-247,177 (Other Patents Pending)

6,691,683	6,520,141	6,325,036	6,145,487	6,012,420	5,803,035	5,548,955	5,243,878	5,138,996	4,875,448	D 476,629
6,647,942	6,495,267	6,311,663	6,142,257	5,992,367	5,765,713	5,546,901	5,235,943	5,086,890	4,819,593	D 457,891
6,622,683	6,494,175	6,284,123	6,135,426	5,904,124	5,732,555	5,445,014	5,234,038	5,070,829	4,720,638	D 368,187
6,615,787	6,472,790	6,263,852	6,116,212	5,894,715	5,645,025	5,503,125	5,228,487	5,058,544	4,719,682	D 375,963
6,617,725	6,460,502	6,260,529	6,105,548	5,887,678	5,642,701	5,501,203	5,197,426	5,040,644	4,633,556	D 309,457
6,603,227	6,456,515	6,242,828	6,347,614	5,852,951	5,628352	5,497,679	5,197,425	5,009,208	4,630,498	D 372,871
6,595,897	6,382,166	6,239,709	6,082,323	5,843,345	5,619,845	5,320,795	5,197,422	4,996,956	4,522,080	D 361,771
6,595,176	6,369,532	6,237,555	6,077,063	5,823,153	5,606,948	5,301,643	5,191,864	4,977,879	4,520,288	D 356,951
6,584,964	6,356,003	6,230,678	6,064,027	5,819,513	5,606,851	5,271,363	5,188,069	4,977,877	4,512,499	D 309,457
6,557,833	6,349,688	6,213,083	6,040,767	5,813,384	5,605,130	5,269,713	5,186,142	4,971,219	4,453,507	D 308,872
6,542,074	6,347,614	6,202,616	6,014,808	5,809,958	5,497,679	5,265,700	5,150,674	4,895,119	4,430,984	D 308,871

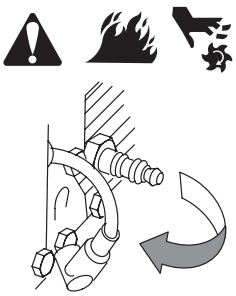


Fig. 5

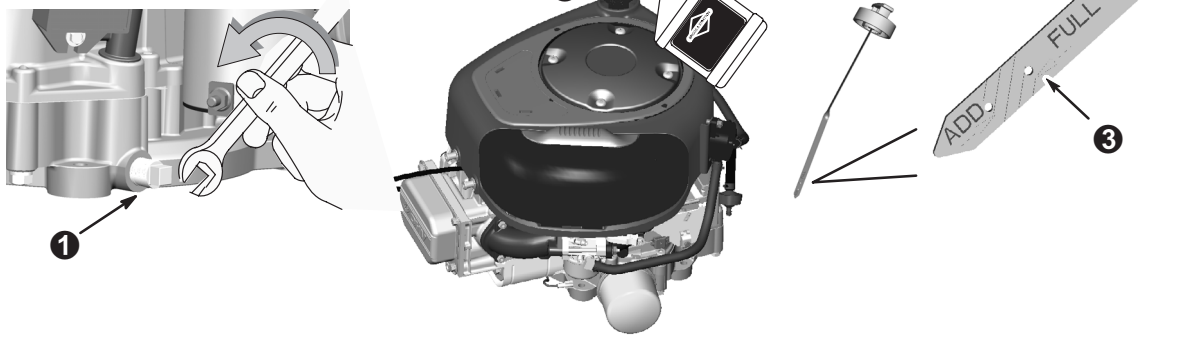


Fig. 6

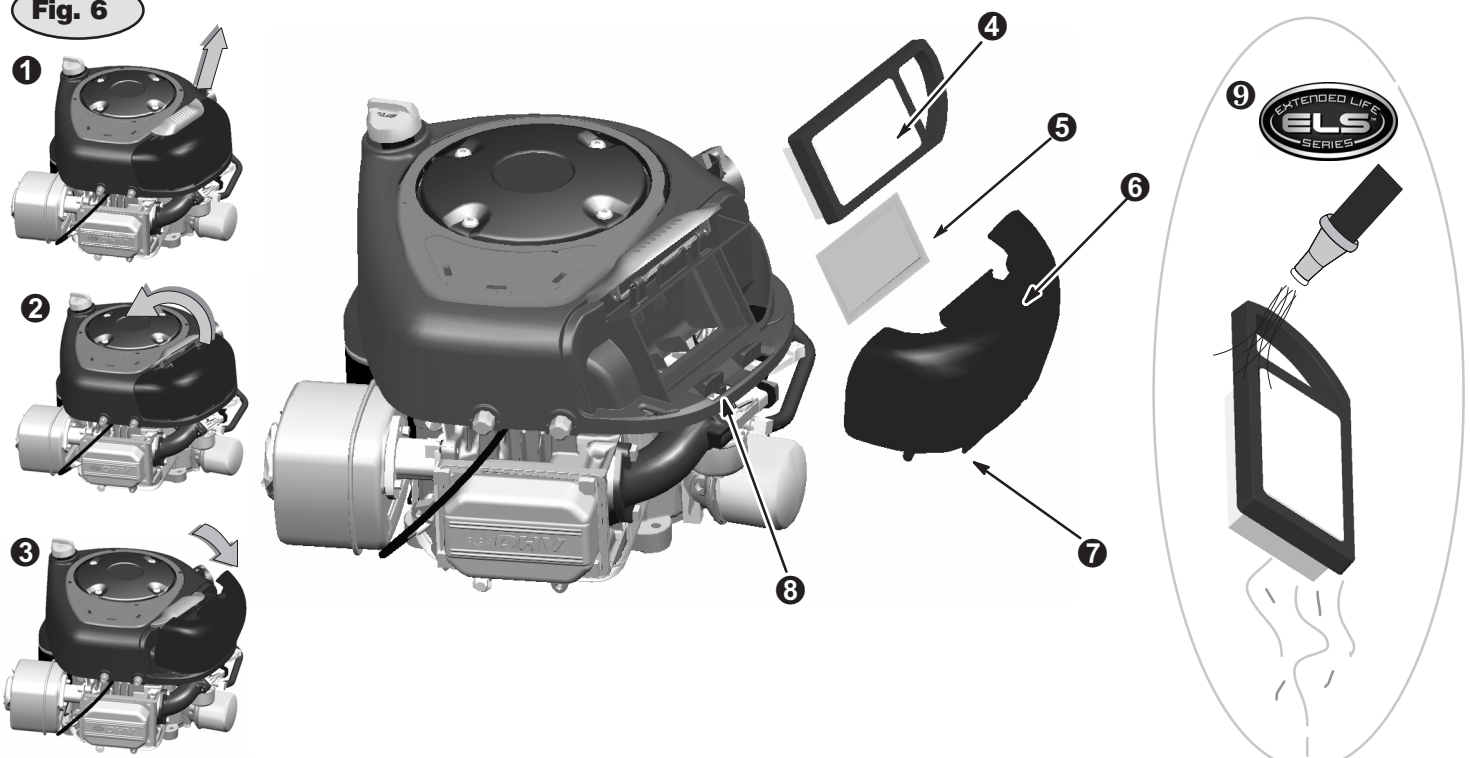


Fig. 7

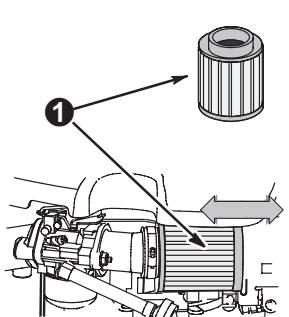


Fig. 8

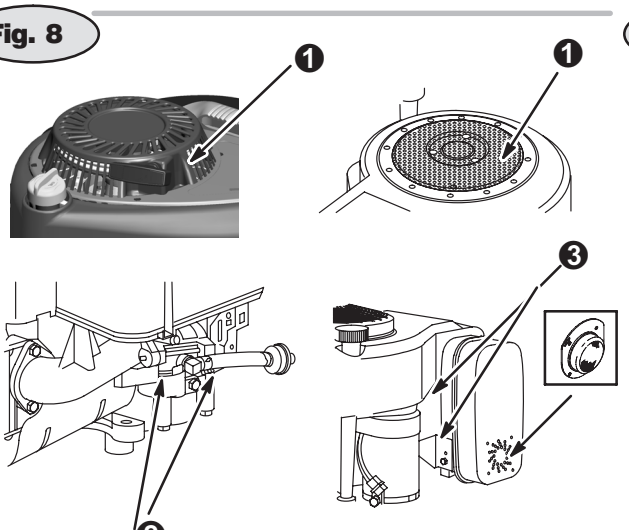
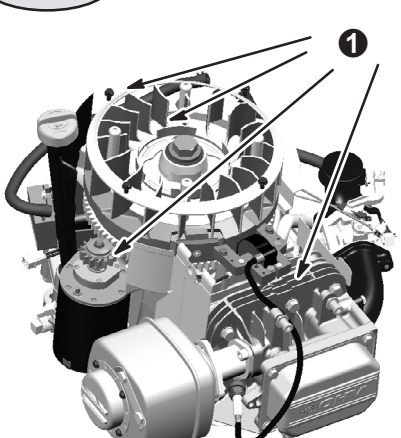


Fig. 9



THE POWER WITHIN™